EXHIBIT 14

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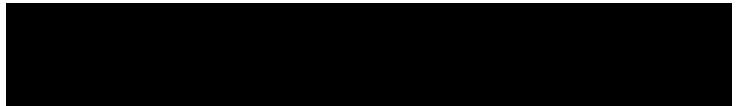
the interleaver, wherein the shared memory allocated to the deinterleaver is used at the same time as the shared memory allocated to the interleaver.

C.   **THE FAMILY 6 PATENTS**

85.   Dr. Madisetti does not substantively address the file history of the '835 patent in his report. Instead, he provides only a single paragraph that merely summarizes information that appears on the face of the '835 patent. *See* Madisetti Op. Rpt. ¶ 83. I summarize the file history below. From my review of the file history, it is my opinion that a person having ordinary skill in the art would understand "configurable to" to mean something narrower than "capable of" because applicant surrendered "capable of" as the meaning of "configurable to" during prosecution.

86.   In his discussion of the '835 patent, Dr. Madisetti states that "[t]he inventions [of the '835 patent] also substantially reduce the need for repeated and lengthy re-initialization procedures that interrupt steady-state data transmission (*i.e.* 'Showtime')." Madisetti Op. Rpt. ¶ 80. I disagree. It has always been a goal in DSL to provide stable connections and to avoid lengthy retraining procedures. As a result, both standards and service providers impose requirements and restrictions designed to ensure nearly error-free service and to avoid interruptions to connections. *See, e.g.*, SS-049R1, Abstract ("SBC field experience has shown that some ADSL lines fail to provide reliable service due to high level intermittent noise that has frequent re-occurrence. This differs from the classic concept of short duration and infrequent impulse noise. SBC field experiments have determined that many trouble cases due to intermittent noise can be effectively resolved by setting the ADSL coding parameters to provide a high level of coding redundancy."); *id.* at 2 ("The addition of the new values of INP=4,8,16, or 32 allows this expression to allow very small N values essentially providing service providers with the ability they need to correct a line undergoing difficult intermittent noise (even if at low

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data rate). The value of INP=8 allows codeword lengths as low as 32, and the higher values

allow very low data rates on severely chronic lines. An INP setting of 4 or larger will imply that

impulse protection is more important than maximum data rate and so the equipment will connect

at the highest data rate that maintains the impulse protection level indicated regardless of the net

data rate. Service providers are expected to use the INP setting of 4 only for lines with severe

noise, where the lower data rate is a better choice than not having reliable service."). Hence,

prior to the '835 patent, service providers were already utilizing techniques and procedures,

provided by standards, for adjusting ADSL parameters to ensure reliable service despite such

impairments as impulse noise to "substantially reduce the need for repeated and lengthy re-

initialization procedures that interrupt steady-state data transmission (*i.e.* 'Showtime')."

87.   Dr. Madisetti also states incorrectly that "[a] flag signal is sent from a receiving

transceiver to a transmitting transceiver to synchronize when the transition to new (second) FIP

setting is to occur." Madisetti Op. Rpt. ¶ 82. The '835 patent does not support this statement.

1.   Summary of the '835 Patent

88.   I incorporate by reference Bruce McNair's discussion of the summary of the '835

patent set forth in section VIII of his Opening Report as if fully set forth herein. McNair Family

6 Op. Rpt. § VIII.

2.   '835 Patent File History

89.   In relevant part, on April 28, 2011, the applicant added claim 73, which recited:

> A system capable of adapting an impulse noise protection capability
> of a transceiver during steady-state communication or initialization
> comprising:
>
>   a transceiver that is capable of:
>
>   transmitting or receiving using a first forward error
>   correction setting,
>
>   transmitting or receiving a flag signal, and

switching to transmitting or receiving using a second forward error correction setting based at least on the flag signal,

wherein:

the first forward error correction setting comprises at least one first forward error correction parameter value,

the first[*sic*] forward error correction setting comprises at least one second forward error correction parameter value, different than the first forward error correction parameter value, and

the switching occurs on a on a pre-defined forward error correction codeword boundary following the flag signal.

TQD_TX00061959–63.

90.   On May 25, 2011, the Examiner mailed an Office Action finally rejecting claims 73. TQD_TX00061979–80. With respect to claim 73, the Examiner stated that "the limitation 'capable of' is not a positive limitation," and "[a]ny limitation following 'capable of' will not be given any patentable weight." TQD_TX00061980; *see also* TQD_TX00061982 ("capable of is not a positive limitation").

91.   On February 6, 2012, the applicant filed a request for continued examination (RCE) and an amendment after final. TQD_TX00062006-19. In addressing the rejection of claim 73, the applicant argued that "the term 'capable of' is definite." TQD_TX00062017 (apparently attempting to cite *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325 (Fed. Cir. 2010)).

92.   On January 22, 2013, the Examiner mailed an Office Action finally rejecting claim 73 as submitted with the RCE. TQD_TX00062050–59. Once again, the Examiner stated that "'capable of' is not a positive limitation," and "[a]ny limitation following 'capable of' will not be given any patentable weight." TQD_TX00062052. To enable the Examiner to give patentable weight to the limitations after "capable of," the Examiner suggested replacing

"capable of" by "configured to." TQD_TX00062057.

93.   On April 17, 2013, the applicant submitted an amendment in response to the

January 22, 2013 Office Action. TQD_TX00062074–82. The applicant amended claim 73,

which eventually issued as claim 8. TQD_TX00062076–77, TQD_TX00062098. As amended,

claim 73 recited:

> An apparatus configurable to adapt forward error correction and interleaver parameter (FIP) settings during steady-state communication or initialization comprising:
>> a transceiver operable to:
>>> transmit using a first FIP setting,
>>>
>>> transmit a flag signal, and
>>>
>>> switch to using for transmission, a second FIP setting following transmission of the flag signal,
>> wherein:
>>> the first FIP setting comprises at least one first FIP value,
>>>
>>> the second FIP setting comprises at least one second FIP value, different than the first FIP value, and
>>>
>> the switching occurs on a pre-defined forward error correction codeword boundary following the flag signal.

TQD_TX00062076–77.

94.   On April 23, 2013, applicant's representative and the Examiner held an examiner-

initiated interview during which "various informality [*sic*] in the set of claims filed on 4/17/2013

were discussed and applicant submitted the attached propoposed [*sic*] claim amendment to

correct such informalities in order to place the application in better form for allowance."

TQD_TX00062097. The amendments to claim 73 are shown below:

> An apparatus configurable to adapt forward error correction and interleaver parameter (FIP) settings during steady-state communication or initialization comprising:
>> a transceiver**, including a processor,** ~~operable~~ **configurable** to:
>>> transmit **a signal** using a first FIP setting,

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> transmit a flag signal, and
>
> switch to using for transmission, a second FIP setting following transmission of the flag signal,

wherein:

> the first FIP setting comprises at least one first FIP value,
>
> the second FIP setting comprises at least one second FIP value, different than the first FIP value, and

the switching occurs on a pre-defined forward error correction codeword boundary following the flag signal.

TQD_TX00062097, TQD_TX00062106.

95.   On April 24, 2013, the Examiner mailed a notice of allowability that included an Examiner's Amendment with the claim amendments submitted by applicant's representative. TQD_TX00062099.

3.   Asserted Claims

96.   I understand that TQ Delta has asserted that certain of CommScope's products (the "Accused Products") infringe claim 10 of the '835 patent.

97.   Claim 8, from which claim 10 depends, recites:

> 8.   An apparatus configurable to adapt forward error correction and interleaver parameter (FIP) settings during steady-state communication or initialization comprising:
>
> a transceiver, including a processor, configurable to:
>
> transmit a signal using a first FIP setting,
>
> transmit a flag signal, and
>
> switch to using for transmission, a second FIP setting following transmission of the flag signal,
>
> wherein:
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> the first FIP setting comprises at least one first FIP value,
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> the second FIP setting comprises at least one second FIP value, different than the first FIP value, and

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C.   Family 6

172.   I noticed a number of errors and inconsistencies in TQ Delta's experts' analyses,

which I discuss further below in this section. In Section XI.C, I address TQ Delta's experts'

analyses of the Accused Products.

1.   <mark>Errors In Claim Interpretation</mark>

173.   TQ Delta's experts have rendered opinions based on the alleged capabilities of the

Accused Products.

174.   For example, throughout his report, Dr. Madisetti equates the term "configurable to" with the term "capable of." Dr. Madisetti consistently states his understanding of, and grounds his conclusions on infringement in, what the Accused Products are allegedly "capable of." *See, e.g.*, Madisetti Op. Rpt. ¶ 253 (

); *id.* ¶ 259 (

); *id.* ¶ 260 (

) (internal citation omitted); *id.* ¶ 261 (

); *id.* ¶ 277 (

); *id.* ¶ 291 (

); *id.* ¶ 307 (

); *id.* ¶ 310 (

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████████████████████████████); *id.* ¶ 314 (████████████

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████████████████); *id.* ¶¶ 315, 325 (███████████████████████████

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███████████████████████████████).

175.   Indeed, Dr. Madisetti's overall opinion is that the Accused Products infringe

claims 8 and 10 because, according to him, they are ████████████████████████

██████████████████████████████████ *See, e.g.*, Madisetti Op. Rpt. ¶ 253 (████

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████████████████████████████████████); *id.* ¶ 196 (████

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█████████████████████████████████) (emphases added).

176.   As explained above, although Dr. Madisetti purports to have reviewed the file

history of the '835 patent, his report contains no discussion of the documents in the file history

showing clearly that the applicant surrendered "capable of" claim language. As a result, Dr.

Madisetti's infringement opinions are premised on an incorrect interpretation of the claims.

177.   As I discuss further below (*see infra* § X.C.3), Dr. Cooklev's tests, which were

not conducted in accordance with either industry-recognized procedures or how CommScope's

Accused Products are deployed by customers, also show only product capabilities.

178.   Thus, all of TQ Delta's experts have rendered opinions that ignore the prosecution history of the '835 patent and the fact that the applicant surrendered "capable of" as the meaning of "configurable to" during prosecution.

2.   Assertions Related to Compliance With G.993.2 (VDSL2)

179.   I disagree with Dr. Madisetti's opinion that compliance with the G.993.2 Recommendation requires use of claim 10 of the '835 patent. In my opinion, compliance with G.993.2 does not require infringement of claim 10 of the '835 patent.

a.   "Compliance" With G.993.2 Does Not Require Implementation Of Every Aspect of the Standard, Exactly As Set Forth

180.   I disagree with Dr. Madisetti's assertions that "[c]ompliance with the standard can be claimed only if a product operates in accordance with the mandatory portions of the VDSL2 standard" and "to the extent an optional feature is implemented, the implementation must comply with the provisions of that optional feature as specified in the VDSL2 standard. Madisetti Op. Rpt. ¶¶ 179, 252.

181.   First, in my experience, a product that operates in accordance with, is compliant with, or supports a particular standard does not necessarily implement each of the many hundreds of purportedly mandatory or optional sections of that particular standard exactly as they are specified. It is well known, for example, that the purpose of DSL standards is to ensure that a transceiver made by one manufacturer and connected to one end of a subscriber line will interoperate with a transceiver made by a different manufacturer and connected to the other end of the subscriber line. For example, as I explained above, the University of New Hampshire InterOperability Laboratory was established for this very purpose. It is also well known to those having ordinary skill in the art that sometimes a DSL standard will specify a particular way of doing something, but there are other ways of doing it that will be transparent to and undetectable

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C.   THE FAMILY 6 PATENTS

1.   The Accused Products Do Not Infringe Claim 10 of the '835 Patent

261.   Dr. Madisetti contends that ████████████████████████████

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262.   As I explained above, Dr. Madisetti's opinion that ██████████████████████

████████████ is inconsistent with the prosecution history and the applicant's surrender during

prosecution of "capable of" as the meaning of "configurable to." Moreover, as I also explained

above, compliance with G.993.2 does not require implementation of claim 10 of the '835 patent.

263.   In addition, even if ████████████████████████ *were* sufficient to

demonstrate infringement in this case—which, as I have explained, they are not—Dr. Madisetti

and Dr. Cooklev have failed to show that the Accused Products meet all of the elements of claim

10.

   a.   **"An apparatus configurable to adapt forward error correction and interleaver parameter (FIP) settings during steady-state communication or initialization"**

264.   I disagree with Dr. Madisetti's assertion that the Accused Products meet the

preamble of claim 8. Furthermore, I disagree with Dr. Madisetti's opinion "█████████

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█████████████" because, according to him, it "████████████████████████████

██" of Dr. Madisetti's opening report.

Madisetti Op. Rpt. ¶ 259.

265.   According to Dr. Madisetti, whether "████████████████████████████

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█████████████████████" is dependent on ██████████████████████████████████

██████████████████████████████████. Madisetti Op. Rpt. ¶ 262. Dr. Madisetti explains

that "██

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███████████████" *Id.* In other words, according to Dr. Madisetti, the Accused Products █████

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266.   In addition, even accepting Dr. Madisetti's interpretation of the claim language,

the Accused Products ██

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

267.   Dr. Madisetti also relies on Dr. Cooklev's test results, [REDACTED]

[REDACTED], to support his opinion that the Accused Products meet the

preamble of claim 8. Madisetti Op. Rpt. ¶ 310. As I explained above, neither TQ Delta nor any

of its experts has provided any evidence that [REDACTED]

[REDACTED]. Therefore, Dr. Cooklev's tests do not reflect how

the Accused Products are configured or actually operate when deployed by CommScope's

customers.

268.   Dr. Madisetti also reads too much into testimony from Dr. Yu and from Mr.

Miller regarding [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

269.   Thus, it is my opinion that the Accused Products do not meet the preamble of

claim 8.

>   b.   "a transceiver…configurable to…transmit a flag signal"

270.   I disagree with Dr. Madisetti's opinion that the Accused Products transmit a "flag

signal" as that term has been construed by the Court.

271.   Purportedly to support his opinion, Dr. Madisetti relies on G.993.2, his source

code review, and Dr. Cooklev's testing. Madisetti Op. Rpt. ¶¶ 288–291.

272.   With respect to G.993.2, Dr. Madisetti opines that "████████████████

██ "

Madisetti Op. Rpt. ¶ 288. I disagree. ████████████████████████████████

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273.   Likewise, Dr. Madisetti's review of the source code supports my opinion that the

Syncflag does not "indicate when an updated FIP setting is to be used." Indeed, in the section of

his report purportedly showing that the Accused Products transmit a flag signal, Dr. Madisetti

merely shows ██

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274.   ██

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275.   Dr. Madisetti also relies on Dr. Cooklev's test results to support his opinion that

the Accused Products meet this element of claim 8. Madisetti Op. Rpt. ¶¶ 289–290.

Specifically, he relies on Dr. Cooklev's tests ██████████████████. As I explained above,

neither TQ Delta nor any of its experts has provided any evidence that the Accused Products █

███████████████████████████. Therefore, Dr. Cooklev's tests do not reflect

how the Accused Products are configured or actually operate when deployed by CommScope's

customers.

276.   Thus, it is my opinion that the Accused Products do not transmit a "flag signal" as

construed by the Court.

             c.   **"a transceiver…configurable to…switch to using for
transmission, a second FIP setting following transmission of
the flag signal"**

277.   Dr. Madisetti's opinion with respect to this element of claim 8 is set forth in terms

of what the Accused Products ██████████████ *See, e.g.*, Madisetti Op. Rpt. ¶ 310

(██████████████████████████████

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█████████████████████); *id.* ¶ 312 (████████████████

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████████████); *id.* ¶¶ 315, 325 (████████████████

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278.   As I have explained, during prosecution of the application that matured into the '835 patent, the applicant surrendered "capable of" as the meaning of "configurable to." Thus, Dr. Madisetti's opinion that the Accused Products meet this element of claim 8 is inconsistent with the '835 patent's prosecution history. Furthermore, in my opinion, a person having ordinary skill in the art would understand "configurable to," at least as used here, to of similar scope to "operable to." As described above the claim language "operable to" was amended by an Examiner's amendment, concurrent the Examiner allowing the claims, to "configurable to" to "correct such informalities" in the claim. A person having ordinary skill in the art would not expect an Examiner's amendment to broaden the scope of the claim since that would necessitate a further search of the prior art. Accordingly, a person having ordinary skill in the art would understand "configurable to" the have the same or narrower scope than "operable to." Because the court found "operable to" to mean "configured to" as it is used in another Family 6 patent with a common specification (Dkt. 169, at 23), in my opinion "configurable to" as used here should also be interpreted to mean "configured to."

279.   Moreover, Dr. Madisetti has relied on Dr. Cooklev's testing, which ██████████
████████. Madisetti Op. Rpt. ¶ 310. As I explained above, neither TQ Delta nor any of its experts has provided any evidence that ████████████████████████████████████
████████████████████████████████. Therefore, Dr. Cooklev's tests do not reflect how the Accused Products are configured or actually operate when deployed by CommScope's customers.

280.   Furthermore, as I explained above, the Accused Products do not "transmit a flag signal" as claim 8 requires, and therefore they also do not "switch to using for transmission, a

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346.   ███████████████████████████████████████

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347.   ████████████████████████████████

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348.   Claim 10 requires (a) "allocating <u>a</u> memory <u>between a</u> retransmission function and <u>an</u> interleaving and/or deinterleaving function" and (b) that "a message transmitted during initialization indicates <u>how **the** memory has been allocated **between the** retransmission function and **the** interleaving and/or deinterleaving function."

349.   <mark>Allocating "a memory" "between" two functions means that all of the memory has to be allocated to one or the other of the two functions. Additionally, claim 10 states that the allocation is between <u>a</u> retransmission function and <u>an</u> interleaving and/or deinterleaving function, not, for example, that the allocation is between a retransmission function and at least</mark>

one interleaving and/or deinterleaving function. Finally, claim 10 states that the allocation is done by a transmitter portion, which would have no knowledge of or ability to do any allocation for receiver functions.

350.   Dr. Cooklev has not asserted, nor has he provided any evidence, that the CommScope CPE devices have one memory for downstream functions that would be allocated between a downstream deinterleaver and a downstream retransmission function and one memory for upstream functions that would be allocated between an upstream interleaver and an upstream retransmission function. Nor has he asserted or provided any evidence that the accused products have one memory for LP_0 (which would always be used for interleaving and deinterleaving) and a separate memory for LP_1 (which could be split between interleaving/deinterleaving and retransmission).

351.   Instead, Dr. Cooklev has asserted that ███████████████████████ ██. Even accepting Dr. Cooklev's assertion as true, because G.998.4 requires the use of both LP_0 and LP_1 whenever retransmission is in use, that single shared memory is shared for DS and US, and by both latency paths. In other words, the single shared memory is shared by four functions, and therefore it is never "allocated between a retransmission function and an interleaving and/or deinterleaving function," much less by a "transmitter portion" of the transceiver. *See, e.g.*, G.998.4 § C.1.1. There is no scenario in G.998.4 in which a single shared memory is allocated between a single retransmission function and a single interleaving and/or deinterleaving function. There are always four functions sharing the memory, two of which are transmit (US) functions, and two of which are receive (DS) functions. Accordingly, the accused products do not have a transmitter portion that "allocat[es] a memory between a retransmission function and an interleaving and/or

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373.   Claim 18 requires "allocating a memory between a retransmission function and an interleaving and/or deinterleaving function."

374.   Allocating "a memory" "between" two functions means that all of the memory has to be allocated to one or the other of the functions. Also, claim 18 states that the allocation is between a retransmission function and an interleaving and/or deinterleaving function, not, for example, that the allocation is between a retransmission function and at least one interleaving and/or deinterleaving function. Finally, claim states that the allocation is done by a receiver portion, which would have no knowledge of or ability to do any allocation for transmission functions.

375.   ████████████████████████████████████

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376.   ████████████████████████████████████

377.   Dr. Cooklev has not asserted, nor has he provided any evidence, that the accused products have one memory for downstream functions that would be allocated between a downstream deinterleaver and a downstream retransmission function and one memory for upstream functions that would be allocated between an upstream interleaver and an upstream retransmission function. Nor has he asserted or provided any evidence that the accused products have one memory for LP$_0$ (which would always be used for interleaving and deinterleaving) and a separate memory for LP$_1$ (which could be split between interleaving/deinterleaving and retransmission).

378.   Instead, Dr. Cooklev has asserted that ████████████████████████ ██████████████████████████████████████. Even accepting Dr. Cooklev's assertion as true, because G.998.4 requires the use of both LP$_0$ and LP$_1$ whenever retransmission is in use, that single shared memory is shared for DS and US, and by both latency paths. In other words, that single shared memory is shared by <u>four</u> functions, and therefore it is never "allocated between <u>a</u> retransmission function and <u>an</u> interleaving and/or deinterleaving function," much less by a "receiver portion" of the transceiver. *See, e.g.*, G.998.4 § C.1.1. There is no scenario in G.998.4 in which a single shared memory is allocated between a single retransmission function and a single interleaving and/or deinterleaving function. There are always four functions sharing the memory, two of which are transmit (US) functions, and two of